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EXAMINER
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This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☒ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-20 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-20 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Part III DETAILED ACTION

The disclosure is objected to because of the following informalities: the wording of Claim 10 expresses a dependency of the claim on itself. Appropriate correction is required.

Drawings

1. The drawings are objected to because Figures 1, 2, 3a, 3b, 3c, and 4 are not designated by a legend such as "Prior Art". The legend is necessary in order to clarify what applicant's invention is. MPEP § 608.02(g). Correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

3. Claims 1-20 are rejected under 35 U.S.C. § 103 as being unpatentable over Poetsch (U.S. Patent No.4,312,017) in view of Diermann et al. (U.S. Patent No. 4,270,150). Regarding Claim 1, Poetsch discloses a method for converting a two-to-one anamorphic film image into a video output signal having multiple video output lines comprising the steps of scanning the film image in a progressive scan, each scan comprising a scan line, using the non-anamorphic spacing between scan lines (Column 1, Lines 44-55), storing the scan lines in memory (Column 1, Lines 56-57), and forming a video output line (Figure 1, Item 18). Poetsch does not disclose the specifics of the processing of the video data according to the steps claimed in the instant invention. However, Diermann et al. disclose the forming of output video lines in a telecine apparatus wherein for the first video output line a first scan line is combined with two scan lines adjacent to the first scan line (Column 75, Lines 48-50), the three scan lines being successive scan lines of a field (Column 13, Lines 15-16). Thus it is obvious that for subsequent video output lines the combining of scan lines takes place such that a subsequent scan line will differ from the previous scan line by 2n scan lines, where n equals 1 for a progressive output or 2 for an interlaced output. It is also obvious that in order to create a full reproduction of the film image the processing of the image data must continue until the

image is formed into the video output signal. It is well known that special video processing techniques are required in order to provide adequate corrected and/or enhanced video reproductions of scanned film images. Among the known and accepted practices for such processing is the combining of scan lines to produce interpolations that correct and/or enhance the reproduced image. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Diermann et al. for the combining of scan lines in the system of Poetsch to correct and/or enhance the video image data derived from scanning a film image.

Regarding Claims 2-5, Poetsch does not disclose the claimed method for weighting of the scan lines. However, Diermann et al. discloses the combining of scan lines which includes weighting of the scan lines wherein the weighting is unequal and is substantially 1/2 for the scan line and substantially 1/4 for each of the two adjacent lines (Column 73, Lines 20-25). Diermann et al. do not disclose a weighting of the scan lines such that the weighting of each line is substantially equal. However, it is well known that in methods used to convert film images to video, a wide variety of techniques for combining video scan lines can be applied in order to accomplish the desired image correction and /or enhancement. Among those techniques is that of weighting the various lines which are combined, as disclosed in the

Diermann et al. reference. It is well known that the specific weighting factors used can be of any desired value to produce a particular image quality. Thus, the weighting of scan lines can be such that each weight is substantially equal or can take on any other set of weighting values as desired. The Applicants admit that the weights used in any particular processing scheme is a matter of design choice and may be varied at the user's discretion (See Page 7, Lines 32-33 and Page 8, Lines 1-7 of the disclosure). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to apply a weighting methodology such as disclosed by Diermann et al. in the method of Poetsch to correct and/or enhance video data derived by scanning a film image. Furthermore, it would have been obvious that any desired set of weighting factors may be used, including equal and unequal weighting factors. Thus, in the absence of any teaching regarding the criticality of choosing equal weighting as opposed to unequal weighting, it is considered that a substantially equal weighting of the scan lines would have been a matter of design choice at the time of the invention.

Regarding Claims 6-8, Poetsch discloses a method and system to scan a film image in order to derive television signals in standard television interlace scanning format wherein a first and second interlaced field are formed (See Abstract). Poetsch does not disclose the claimed combining of video scan lines. However,

as mentioned with regard to Claim 1, the combining of subsequent scan lines is well known as a procedure for processing the image scan lines in systems that are used for converting film images to video. It is obvious that for displaying the resultant image on television, the video output lines produced by this method must be output in an interlaced format wherein a first and second interlaced field are formed since such interlacing is standard for television signals. Furthermore, it is inherent in processing video for television formatting, that when three scan lines are combined such as in the design of Diermann et al. the first scan line of the second interlaced field must be two lines offset from the first scanned line in the first field. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention, in combining three scan lines into one, that the first scan line of the second interlaced field must be two lines offset from the first scanned line in the first field in order for the resultant signal to be useable in the standard television interlaced field format.

Regarding Claim 9, Poetsch discloses a method for scanning film comprising the steps of scanning the film in m-scan lines of a progressive raster scan. As the film frame is scanned, line by line, each line is assigned an individual line address and the signals are stored in memory (Column 1, Lines 53-60). Data thus derived and stored is available for output in any desirable

configuration. Poetsch discloses that scanning can be progressive or anamorphic (See Abstract). Although the anamorphic mode of Poetsch is accomplised by a change in scanning, the data obtained by the progressive scanning mean of Poetsch could easily be used to recreate an animorphic image by generating a video output consisting of n active scan lines wherein m is at least twice n. This would enable the multi-mode feature of Poetsch to be accomplished without having to change the scanning method. It is well known, as admitted by the Applicants (See Page 6, Lines 17-22 of the disclosure) that the spacing between scan lines is twice as great for anamorphic images as that between scan lines of a progressive scan. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a means in the progressive scanning method of Poetsch for generating a video output consisting of n active scan lines wherein the number of total scan lines available for processing is twice the number of scan lines output thus enabling the device of Poetsch to function in an anamorphic mode without requiring a change in the scanning process. Furthermore, Poetsch does not disclose the combining of scan lines as claimed in the instant invention. However, Diermann et al. disclose combining of a first main scan line with one or more nearby scan lines to form a first video output line and the forming of a next video output line by combining a second main scan line with yet another nearby scan

line where the first main scan line and the second main scan line are not adjacent and repeating the preceding step (Column 73, Lines 20-25). As described in accordance with claim 1, it is well known in the art that the combining of scan lines provides corrective and/or enhancing processing of the video data in a way that improves the performance of systems that convert film images to video. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use, in the system of Poetsch, the method of Diermann et al. for combining scan lines and combining them in such a way that a first main scan line is combined with one or more nearby scan lines to form a first video output line, and a next video output line is formed by combining a second scan line with another nearby scan line where the first and second main scan lines are not adjacent, thereby correcting and/or enhancing the video image derived from the scanning process.

Regarding Claims 10-14, the method of Diermann et al. in combining scan lines uses two scan lines that are adjacent to main scan lines wherein the combined scan lines are unequally weighted. Diermann et al. do not disclose an equal weighting of the scan lines involved. However, as mentioned in accordance with Claim 3, it is well known and admitted by the Applicants that any weighting methodology can be used to produce an effect desired by the operator. Thus, in the absence of any teaching regarding the

criticality of using equal weighting values as opposed to unequal weighting values, it is considered by the Examiner to have been a matter of design choice at the time of the invention to use equal weighting of the scan lines as one of the options for processing the video data.

Regarding Claim 15, Poetsch discloses a system for forming a video output signal from anamorphic film comprising a raster scan generator system for scanning film at a non-anamorphic rate or greater (Column 1, Lines 44-54); a frame store having an input for receiving a digital image signal, an output for outputting multiple digital video signals, and an input for receiving an address (Figure 1, Item 16); and an address generator (Figure 1, Item 31). Poetsch does not disclose the selecting of nonadjacent scans by the address generator. However, the address generator of Poetsch can easily be modified to select nonadjacent scans for processing. This would enable the data obtained in the progressive scanning mode to be used to form a video output signal from anamorphic film data without having to change the scanning method. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the address generator of Poetsch to select nonadjacent scans and thus to enable the system to provide both anamorphic and non-anamorphica data without having to modify the scanning method. Poetsch also does not disclose a means for weighting the output

from the frame store, nor a summing means for combining the output of the weighting means with the output of the summing means forming the video output signal. However, Diermann et al. disclose a means for weighting video lines and a summing means for combining the output of the weighting means, with the output of the summing means forming the video output signal (Column 73, Lines 20-25). As mentioned in accordance with Claim 1, it is well known in the art that in creating video reproductions of film images, weighting and combining of video scan lines is required to provide corrective and/or enhancing processing of the video data derived from scanning of the film. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use, in the system of Poetsch the processing elements of Diermann et al. whereby weighting of vidoe lines is performed and the weighted scan lines are summed to form the video output signal thus correcting and/or enhancing the video data.

Regarding claims 16-18, Poetsch does not disclose the memory as being a random access memory, a DRAM, or a VRAM. However, the Applicants admit that the memory can be "any known type of memory" (See Page 8, Line 13 of the disclosure). Thus, in the absence of any teaching regarding the criticality of using a particular kind of memory, it is considered by the Examiner to have been a matter of design choice at the time of the invention

to use as the memory device a random access memory, a DRAM, or a VRAM.

Regarding Claim 19, Poetsch discloses the use of a telecine for providing the digital image signal to the input of the frame store (Figure 1).

Regarding Claim 20, Poetsch does not disclose the frame store as comprising three separate frame stores. However, it is well known in the art that using multiple elements for video processing increases the operating speed of the system and provides greater flexibility in using the system. Whether or not to use multiple processing elements is a matter of design choice as admitted by the Applicants (See Page 8, Line 17). Thus, in the absence of any teaching regarding the criticality of using three separate frame stores as opposed to one frame store, it is considered by the Examiner to have been a matter of design choice at the time of the invention to use three separate frame stores for processing the video data.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Christensen whose telephone number is (703) 305-9871.

ac
February 22, 1994

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